

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (Currently Amended). Apparatus for resisting motion comprising:

a framework having spaced apart, first and second sides;

a sun pulley fixedly mounted to said first side;

a rotably adjustable pulley mounted on said second side opposite said sun pulley;

a load torque shaft fixed to said adjustable pulley;

an input torque shaft positioned coaxial with said fixed sun pulley and with said load torque shaft and being rotatable relative to said fixed sun pulley;

a user crank arm fixed to an outer end of said input torque shaft;

an arm having a first end fixed to said input torque shaft and a second end mounting a planetary shaft which extends transversely of said arm and parallel to an axis of said input torque shaft;

a first planetary pulley fixedly mounted on said planetary shaft in alignment with said fixed sun pulley;

a second planetary pulley fixedly mounted on said planetary shaft in alignment with said adjustable pulley;

a first belt or chain trained over said sun pulley and said first planetary pulley; and

a second belt or chain trained over said adjustable pulley and said second planetary pulley, whereby placement of a torque on said load torque shaft fixed to said adjustable pulley will place tension on one length of said first belt or chain and tension on the other length of said second belt or chain thereby to establish friction between adjacent moving parts throughout the apparatus thereby to establish resistance to rotary movement of the input torque shaft with the amount of resistance being dependent on the amount of torque placed on said load torque shaft.

Claim 2 (Original). The apparatus of claim 1 wherein said belts are V-belts and said pulleys each have a V-trough for receiving one of the V-belts.

Claim 3 (Original). The apparatus of claim 1 wherein said arm is positioned between said fixed sun pulley and said adjustable pulley and said input torque shaft extends axially through and is rotatably journaled in said fixed sun pulley.

Claim 4 (Canceled).

Claim 5 (Original). The apparatus of claim 1 wherein all of said pulleys have spaced apart teeth and grooves on an outer cylindrical periphery thereof and said belts each have spaced apart grooves and teeth on an inner surface thereof which mate with the teeth and grooves on two aligned pulleys to prevent slippage between pulleys and belts.

Claim 6 (Original). The apparatus of claim 1 wherein said belts are flat-belts and said pulleys each have a flat surface for receiving one of said flat-belts.

Claim 7 (Original). The apparatus of claim 1 wherein each of said belts is round with a circular cross-section and each of said pulleys is one of flat or has a semi-circular trough for receiving one of said round belts.

Claim 8 (Original). The apparatus of claim 1 including a lever arm mounted to said load torque for applying a torque to said load torque shaft and adjustable holding means for holding said lever arm in one of a plurality of selected positions relative to said load torque shaft.

Claim 9 (Original). The apparatus of claim 7 wherein said adjustable holding means include a member having a threaded hole, said member being fixed to said framework and a rod coupled to said lever arm and having a threaded portion is threadably received in said threaded hole.

Claim 10 (Currently Amended). Apparatus for resisting motion comprising:

- a framework having spaced apart, first and second sides;

- a sun sprocket fixedly mounted to said first side;

- a rotatably adjustable sprocket mounted on said second side opposite said sun sprocket;

- a load torque shaft fixed to said adjustable sprocket;

- an input torque shaft positioned coaxial with said fixed sun sprocket and with said load torque shaft and being rotatable relative to said fixed sun sprocket;

- a user crank arm fixed to an outer end of said input torque shaft;

- an arm having a first end fixed to said input torque shaft and a second end mounting a planetary shaft which extends transversely of said arm and parallel to an axis of said input torque shaft;

- a first planetary sprocket fixedly mounted on said planetary shaft in alignment with said fixed sun sprocket;

- a second planetary sprocket fixedly mounted on said planetary shaft in alignment with said adjustable sprocket;

a first chain trained over said sun sprocket and said first planetary sprocket; and

a second chain trained over said adjustable sprocket and said second planetary sprocket, whereby placement of a torque on said load torque shaft fixed to said adjustable sprocket will place tension on one length of said first chain and tension on the other length of said second chain thereby to establish friction between adjacent moving parts throughout the apparatus thereby to establish resistance to rotary movement of the input torque shaft with the amount of resistance being dependent on the amount of torque placed on said load torque shaft.

Claim 11 (Currently Amended). Apparatus for resisting motion comprising:

a framework having spaced apart, first and second sides;

a sun gear fixedly mounted to said first side;

a rotatably adjustable gear mounted on said second side opposite said sun gear;

a load torque shaft fixed to said adjustable gear;

an input torque shaft positioned coaxial with said fixed sun gear and with said load torque shaft and being rotatable relative to said fixed sun gear;

a user crank arm fixed to an outer end of said input torque shaft;

an arm having a first end fixed to said input torque shaft and

a second end mounting a planetary shaft which extends transversely of said arm and parallel to an axis of said input torque shaft;

a first planetary gear fixedly mounted on said planetary shaft in alignment and engagement with said fixed sun gear;

a second planetary gear fixedly mounted on said planetary shaft in alignment and engagement with said adjustable gear, whereby placement of a torque on said load torque shaft fixed to said adjustable gear will place load on engaging teeth between said adjustable gear and said second planetary gear and on the engaging teeth between said first planetary gear and said fixed sun gear thereby to establish friction between adjacent moving parts throughout the apparatus thereby to establish resistance to rotary movement of the input torque shaft with the amount of resistance to rotary movement of the input torque shaft with the amount of resistance being dependent on the amount of torque placed on said load torque shaft.

Claim 12 (Original). The apparatus of claim 11 wherein at least one of said fixedly mounted sun gear and said adjustable gear is an internal gear.

Claim 13 (Cancelled).

Claim 14 (New). A motion resistance apparatus comprising:

a rotatable input shaft;

a drive device coupled to said input shaft for receiving input torque from an external source and applying said input torque to said input shaft;

an output shaft; and

an adjustment mechanism for selectively applying a load torque to said output shaft;

a gear system coupled between said input shaft and said output shaft, said gear system configured such that the torque required to rotate said input shaft is a function of the selected load torque applied to said output shaft, said gear system further configured such that the ratio of said output speed to said input speed is zero.

Claim 15 (New). The motion resistance apparatus as recited in claim 14 wherein said drive device is directly coupled to said input shaft.

Claim 16 (New). The motion resistance apparatus as recited in claim 15 wherein said drive device includes at least one pedal.

Claim 17 (New). The motion resistance apparatus as recited in claim 15 wherein said drive device includes at least one crank.

Claim 18 (New). The motion resistance apparatus as recited in claim 14 wherein said drive device is indirectly coupled to said input shaft.

Claim 19 (New). The motion resistance apparatus as recited in claim 18 wherein said drive device includes a belt.

Claim 20 (New). The motion resistance apparatus as recited in claim 18 wherein said drive device includes a chain.

Claim 21 (New). The motion resistance apparatus as recited in claim 14 wherein said adjustment mechanism includes a lever arm and a mechanism for applying torque to said output shaft.

Claim 22 (New). The motion resistance apparatus as recited in claim 14 wherein said gear train includes at least one planetary gear.